

the forces that will shape the child's whole existence. I admit that often one feels that efforts are useless, for one is so frequently confronted with parents whose personality, patterns, and habits of action are such as to render them unfit for parenthood. Fortunately, these are few. The average parent, in my experience, is ready and willing to accept this viewpoint, and makes a coöperative assistant in our efforts to shape the behavior and adjustments of the child.

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ERNST WOLFF, M. D. (450 Sutter Street, San Francisco).—Doctor Anderson's paper, in its simplicity and breadth, is an admirable exposé of dynamic psychology as it applies to pediatric problems. Even more than new knowledge, its practical application demands new attitudes. For pediatricians must acquire not only an objective familiarity with psychological factors pertaining to the child in its setting, but, more important, he must vitalize this knowledge through his own development, and through his self-understanding. Only through self-development can he exercise such influence over parent and child that whatever helpful advice he may give is actually put into effect, and the contact with him as a personality will in itself be a maturing experience for parent and child.

The organization of pediatric work needs to be built up so that there is an integration of mental hygiene concepts into the field of prevention and treatment. This means a combined psychobiologic approach to prenatal, well-baby, and preschool clinics, and into the pediatric wards. In the same way diagnosis and treatment of childhood diseases should be based on the consideration of functional and organic factors simultaneously.

Thus the scope of pediatrics will be extended, and the pediatrician will come in an advisory capacity into the field of progressive education.

ACUTE IRITIS: ITS TREATMENT*

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DISCUSSION by George H. Kress, M. D., Los Angeles; Samuel A. Durr, M. D., San Diego; Alfred R. Robbins, M. D., Los Angeles.

LEAVING out of consideration trauma to the eye and foreign bodies in the eyes, the only eye conditions which demand emergency treatment are acute glaucoma, conjunctivitis due to the gonococcus, serpiginous corneal ulcers, and acute iritis. Delayed and improper treatment of acute iritis may be disastrous to the eye.

THE IRIS

The iris is a disc-like membrane perforated in its center by the pupil and attached by its distal border to the ciliary body. The iris lies on the lens. When stimulated by light the pupil contracts. This reaction is most active in young people, and not so active in older individuals. There are certain conditions where the pupil does not react to light, such as: Argyll Robertson pupil, atrophy of the iris, acute glaucoma, and acute iritis. When the iris is seen in good light, or, still better, with a magnifying glass, delicate markings are seen on its anterior surface, which are made up by the blood vessels lying in the stroma of the iris.

IRITIS AND IRIDOCYCLITIS

Iridocyclitis is an inflammation of the iris and the ciliary body. Fuchs¹ states: "Unmixed inflammation of the iris (iritis) is rare; in most

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TABLE 1.—*Differential Diagnosis Between Ciliary and Conjunctival Injection (Table After May)*

Ciliary Injection (Deep)	Conjunctival Injection (Superficial)
1. Derived from the anterior ciliary vessels.	Derived from the posterior conjunctival vessels.
2. Accompanies iridocyclitis, deep inflammations of the cornea, and may accompany severe conjunctival inflammations.	Accompanies conjunctivitis.
3. Lacrimation, but no discharge.	Lacrimation and some discharge.
4. Consists of hyperemia of episcleral network of capillaries and veins.	Composed of a network of superficial tortuous vessels, which are easily recognized.
5. Cannot be displaced with the movements of the conjunctiva.	Can be moved with the conjunctiva by pressure of the lower eyelid.
6. Most marked around the cornea (circumcorneal injection), and diminishes toward the retrolarsal fold.	Injection diminishes from the retrolarsal fold toward the cornea.
7. Pink, violet-red color.	Bright, brick-red color.
8. Epinephrin has very little effect on the ciliary injection.	Epinephrin causes blanching of the conjunctival injection.

cases we have to do with a combination of the two (iridocyclitis)." In this article it will be considered as iritis.

SYMPTOMS OF IRITIS

The symptoms vary. The eye may be very painful, or the pain may not be very prominent. Photophobia and lacrimation are usually present. The vision may be impaired. The usual signs are: some edema of the margins of the eyelids, especially the upper eyelid; ciliary injection, sometimes intense injection of the whole eye. The eye is tender. The iris is swollen, and the fine markings so well seen in the normal eye are not so distinct and may even be obliterated. The color of the iris may be changed by the invasion of exudate and blood. The pupil becomes small and does not react to light, or reacts to light poorly. There may be posterior synechiae. Hypopyon may be present, and fine precipitates are thrown out on the posterior surface of the cornea. The picture varies with the intensity of the infection and the general condition of the patient.

The sequelae are: posterior synechiae, seclusion or occlusion of the pupil, atrophy of the iris, plastic exudates in the vitreous, secondary glaucoma, and secondary cataract.

DIFFERENTIAL DIAGNOSIS

Acute iritis has to be differentiated from acute catarrhal conjunctivitis and acute glaucoma. In differentiating acute iritis from acute catarrhal conjunctivitis, the type of injection of the eyeball is of great importance. Since the bulbar conjunctiva is supplied by vessels from two sources we have to consider the two types of injections: conjunctival injection and ciliary injection. Table 1 describes the two forms. In its pure form, where

TABLE 2.—*Differential Diagnosis of Acute Iritis from Acute Catarrhal Conjunctivitis and Acute Glaucoma.*
(Table After May)

Acute Iritis	Acute Catarrhal Conjunctivitis	Acute Glaucoma
1. Pain: Pain in eye radiating to temples, worse at night.	No pain. A feeling of discomfort.	Severe pain in the eye.
2. Tenderness: Eye tender.	No tenderness.	Eye tender.
3. Lacrimation and Discharge: Lacrimation only.	Lacrimation and discharge.	Lacrimation.
4. Photophobia: Marked.	None or very little.	Marked.
5. Vision: Dimness of vision.	No effect on vision.	Marked loss of vision.
6. Injection of eyeball: Ciliary injection.	Conjunctival injection.	Marked congestion of eyeball.
7. Cornea: Cornea transparent. Deposits on back of cornea may be present.	Cornea not affected.	Cornea steamy.
8. Anterior Chamber: Normal depth. Hypopyon may be present.	Normal.	Shallow. Aqueous turbid.
9. Iris: Swollen, dull and discolored.	Normal.	Congested and discolored.
10. Pupil: Small, sluggish, irregular soon after the use of atropin.	Normal.	Dilated, does not react to light.
11. Tension: Normal. Occasionally elevated.	Normal.	Elevated.
12. Slit-lamp Examination: Anterior chamber full of cells.	Cornea, iris and aqueous normal.	Dense bedewing of the cornea, which masks the aqueous and prevents the estimation of the aqueous flare.

it is not associated with conjunctival injection, ciliary injection occurs in inflammations of the iris, ciliary body, and severe inflammations of the cornea. Although ciliary injection may be present in a severe conjunctivitis, its presence, however, should always lead one to do a careful examination of the iris and the cornea. In doubtful cases, instillation of homatropin, 2 per cent, once or twice, will help to make the diagnosis. In acute catarrhal conjunctivitis, uniform and gradual dilatation of the pupil will be obtained.

Acute iritis has also to be differentiated from acute glaucoma. Table 2 gives differential points by which it may be distinguished from acute glaucoma and acute catarrhal conjunctivitis.

TREATMENT OF IRITIS

Acute iritis is an emergency, in the sense that it calls for immediate treatment. No case of iritis may be considered under control unless all synechiae are broken down and the pupil is widely dilated. The greater the delay in getting the pupil dilated, the greater are the possibilities of complications. With the dilatation of the pupil the hyperemia of the iris is lessened, the inflamed organ is placed at rest, and photophobia and lacrimation subside. There is a gradual diminution of pain and discomfort, and the patient's condition begins to improve. Once the pupil is dilated, and kept dilated, one may look forward to a cure of the iritis.

The "sheet-anchor" of the treatment is atropin. As atropin is chiefly absorbed through the cornea,

it is best to instil the solution with the patient lying down, or with his head tilted backward, keeping the eyelids open, so that the cornea is flooded by the atropin.

As soon as the diagnosis of iritis is made, atropin, 4 per cent, is instilled in the conjunctival sac. One drop should be instilled every fifteen minutes, three or four times. By that time dilatation of the pupil should begin, and in early cases excellent dilatation is quickly obtained. Atropin, 1 per cent, is prescribed, one drop to be instilled every four hours. Hot compresses should be used, applying the compresses for twenty minutes, every two or three hours.

The patient should be seen on the following day. If good dilatation has been obtained and the patient is comfortable, no other treatment is indicated. The instillation of atropin should be continued by the patient until the injection has totally subsided and the eye is free of hyperemia for about a week. The atropin may then be discontinued. If in spite of the use of atropin no dilatation, or very little, has been obtained in twenty-four hours, epinephrin bitartrate, 2 per cent, should be instilled. As the drug is not very stable, fresh solutions are recommended to be obtained in small quantities. Instillations of epinephrin bitartrate is occasionally painful in acute iritis, and the eye should, therefore, be first anesthetized. One drop of the solution is instilled every fifteen minutes for about four times. If no improvement has been observed, a subconjunctival injection of atropin and epinephrin is recom-

mended.² The solution consists of one part of 2 per cent atropin and two parts of epinephrin, 1:1000. The solution may be put up in one cubic centimeter ampoules, ready for use. The eyeball is well anesthetized and about half of one cubic centimeter of the solution is injected subconjunctivally, just around the limbus, partly above and partly below. The injection is very effective: dilatation may begin as soon as the injection is completed.

Of great importance in the treatment of acute iritis is the use of the salicylates. One grain per pound of body weight daily has been recommended by H. Gifford.⁸ The amount and the necessity for the use of the salicylates depend on the severity of the iritis and the patient's symptoms.

S. R. Gifford⁴ recommends the following prescription:

Sodium salicylate.....	$\frac{3}{4}$ i
Simple elixir.....	$\frac{3}{4}$ iss
Aqua q. s. ad.	$\frac{3}{4}$ iv

of which two drams are taken four to six times a day.

NONSPECIFIC PROTEIN THERAPY

Of the nonspecific foreign protein therapy, typhoid-paratyphoid vaccines and whole milk are the important ones. The usual reactions to these are fever, chill, and leukocytosis, with a predominance of the mononuclear cells. The most effective one is the typhoid-paratyphoid. It is best to start with 25 million organisms, given intravenously. As a rule, one injection is sufficient. A marked improvement of the signs and symptoms is obtained in twenty-four hours. Synechia, which have resisted separation, may be broken down. The injection of the eyeball, the pain and the photophobia, usually show a marked improvement. The injection may be repeated, if necessary, in two days, and the dosage increased to 50 millions. If later injections are indicated, they may be increased to 60 or 70 millions, depending on the resultant reactions.

The advantages of milk injections are that it is easily obtained and that the reactions are not so severe. Certified and pasteurized milk have a low count of bacteria. In order to obtain benefit from milk injections, it is necessary to have milk of a high bacterial count. This can be secured as follows: A bottle of either certified or pasteurized milk is placed near a warm radiator for six to twelve hours. The milk is then boiled for three minutes and allowed to cool to body temperature. This boiling time is long enough to destroy the bacterial contamination and not long enough to inactivate whatever might be the active components contained in the milk. The injection is made deeply in the fleshy part of the buttocks with a $2\frac{1}{2}$ -inch needle, under the usual aseptic precautions, and from 10 to 15 cubic centimeters are injected. The treatment may be repeated in forty-eight hours and again in forty-eight hours. A chill is rarely obtained. The patient often perspires and has the sensation of being warm. The temperature and the leukocytosis are not as marked as in typhoid-paratyphoid vaccines injections.⁵

ACUTE IRITIS WITH ELEVATION OF INTRA-OCULAR TENSION

As a rule the intra-ocular tension of an eye with acute iritis is low. Occasionally the tension is increased.

The differential diagnosis between acute iritis, with elevation of intra-ocular tension and acute glaucoma, is often baffling. In such a case it is best to use first instillations of epinephrin, 1:1000, or suprarenin bitartrate, 2 per cent. The epinephrin may also be applied by moistening a cotton wick with the solution and placing it under the upper eyelid, so that it may be in contact with the eyeball. If no dilatation is obtained, cocain, 4 per cent, and euphthalmin, 2 to 4 per cent, should be instilled. If the pupils still remain undilated, homatropin, 2 per cent, should be instilled. If under homatropin the pupil does not dilate, or dilates sluggishly, imperfectly or unevenly, the diagnosis of iritis is confirmed.

As soon as the diagnosis of acute iritis is made, even if the intra-ocular tension is elevated, atropin, 4 per cent, should be instilled. In most of the cases, as soon as the pupil is dilated, the tension returns to normal, and there is an improvement in all the signs and symptoms. If the instillations of atropin cause an increase in the intra-ocular tension, a subconjunctival injection of 6 minims of epinephrin, 1:1000, is advisable. When the tension is reduced, instillations of atropin should be continued and followed by subconjunctival injections of atropin and epinephrin, if necessary.

In the rare cases of acute iritis with elevation of the intra-ocular tension, which cannot be controlled by an injection of epinephrin, and in which the use of atropin has the tendency to increase the tension, we are, as Elliot states, "between Scylla and Charybdis." Such cases should receive that treatment which will give hope of the best result. A paracentesis is often of great benefit; the paracentesis may be repeated if necessary. Surgical interference for the intra-ocular tension may be necessary if the use of atropin increases instead of decreases the intra-ocular tension and the acuteness of the symptoms present, and other drugs fail to keep the pupil dilated.

RECURRENCES OF ACUTE IRITIS

Iritis has a tendency to recur. Usually the recurrence is not as severe as the primary inflammation. However, if frequently repeated, and as they leave fresh exudate after each inflammation, serious sequelae may result, such as seclusion or occlusion of the pupil. An iridectomy performed during the period of quiescence will as a rule stop the recurrences.

Whenever it is indicated, a search for the focus of the infection and for the constitutional condition which may be responsible for the acute iritis should be made.

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DISCUSSION

GEORGE H. KRESS, M. D. (945 Roosevelt Building, Los Angeles).—Acute iritis will always be a subject of interest, because of the serious damage that can accrue to the eye tissues and functions if proper treatment is not used.

Doctor Rodin has stressed the fact that acute iritis is an emergency disease rather than one in which time can be taken to try this or that alternative therapy. In acute iritis vigorous use of atropin, depending on the stage and intensity of the inflammation, is the first order of the day. Instillation first, with varying dosage as may be indicated, followed by subconjunctival injection, as with epinephren, if hard bound adhesions are present. In severe cases, treatment with the foreign proteins is often given. The value of the salicylates has been well established.

The diagnosis is not always as easy as the classical tables of the textbooks, with vertical columns for iritis, glaucoma and acute conjunctivitis, would indicate. In such cases, cautious but prompt procedures must be instituted to establish the diagnosis along lines indicated by Doctor Rodin. With the above, from the very beginning, a search for the causal factors of the iritic inflammation should be made; and either then or later, according to circumstances, an attempt at elimination of these etiologic factors should be carried out.

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SAMUEL A. DURR, M. D. (1006 Medico-Dental Building, San Diego).—Shortly after the speaker's original paper appeared, on the injection of atropin and adrenalin subconjunctivally, I had my only personal experience with this method. The patient was a one-eyed man, aged sixty-five, apparently in good general condition. It was impossible to dilate the pupil by any conservative method, since the patient was seen for the first time, several days after the onset. Fortunately, he was hospitalized. Before the suggested injection was completed, the patient became unconscious, his pulse climbed to 160, his skin was pale and clammy, covered with perspiration as was no doubt my own. The conjunctiva was immediately incised liberally, over the site of the injection, and he was given morphin. I must say that the pupil dilated beautifully, and that he made a perfect recovery. Since then, I have always relied upon instillations of laevo-glaukosan in similar cases, with no untoward results. Horner's report on suprarenin bitartrate, with its rather high percentage of increased intra-ocular tension, caused me to view it with suspicion.

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ALFRED R. ROBBINS, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Rodin has clearly pointed out in his paper the type of treatment that a patient with acute iritis has the right to expect from the attending physician:

1. The diagnosis is essential.
2. The treatment must be instituted.
3. The etiological factor must be sought for and corrected.

Treatment is comprised of local and systemic:

- A. Local includes—
 - (a) Mydriasis
 - (b) Heat (wet or dry)
 - (c) Counter-irritation (Dionin)
 - (d) Bleeding (leeches)
- B. Systemic includes—
 - (a) Specific
 - (b) Nonspecific
 - (c) Removal of foci
 - (d) Bed rest
 - (e) Hyperpyrexia or thermic.

The diagnosis is the basis for any treatment and an uninjured inflamed eye, especially one with little or no dis-

charge, must be considered glaucomatous or iritic until proven otherwise.

Iritic emergency treatment uses atropin, which Doctor Rodin calls the sheet anchor, as the basis of therapy. Mydriasis is essential, and the subconjunctival injection of atropin and epinephrin, as sponsored by Doctor Rodin, is of immense value.

There has been an advance in this treatment since McKenzie's textbook of 1833 advised the rubbing of belladonna unguentum into the skin, to the present-day subconjunctival injections of its alkaloid.

The etiology must be established if possible, and a careful physical examination is imperative, as the emergency treatment is only the beginning of the treatment of acute iritis.

Lues, being listed as the cause in 30 per cent to 50 per cent of iritis cases, must be considered first, then Neisserian infection, tuberculosis, and the so-called rheumatic type, with the search for foci done. If diseased sinuses, tonsils, teeth, prostate, etc., are found, they must be treated immediately and surgically corrected if necessary. We all know the startling cures that have been reported after foci removal.

We feel surgical correction should not be delayed, and that the additional disturbance which might result, is rarely harmful, but instead improves the prognosis.

Local treatment may be augmented by leeches for subjective relief at least.

Rest in bed is as important as iris rest, and should be enforced in the acute stage.

Catharsis is desirable, and calomel with saline is still good treatment.

The various alternatives, including salicylates, mercury, iodine, or the arsenicals, can be tried as indicated.

The hyperpyrexia type of treatment, as given by Doctor Rodin, has been developed and extensively used for a variety of inflammatory conditions, including iritis. The endogenous type using foreign proteins is especially valuable. Care must be used, however, in taking the history and in the small-dose tests before using shock-therapy, as deaths have occurred. Gifford's two afebrile days before repeating injections is desirable.

The exogenous hyperthermic therapy, using electrical current or baking cabinets, is newer. This requires special equipment and must be thoroughly tested before being used indiscriminately. It is probably superfluous to add that, in addition to the treatment of the immediate attack, we will be remiss in our duty unless we attempt to ascertain and treat the causative factors, and thus prevent the destructive recurrences of the disease.

RELAPSING FEVER: COMMENTS ON ITS INCIDENCE IN NEVADA

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DISCUSSION by James T. Vance, M. D., Sacramento; Lawrence Parsons, M. D., Reno, Nevada.

RELAPSING fever was probably first recognized by Hippocrates when he described "bilious remittent malarial fever."¹ However, no further observations were reported until 1744, when Rutty² recorded the first epidemic in Ireland. Since this time it has appeared on every continent on the globe except Australia.

IN FOREIGN COUNTRIES

The disease prevailed in Scotland and Ireland during the years 1799-1800, 1817-1819, 1826-1827, and in 1842-1848; the later year included an invasion of the larger cities of England. In 1868-1870, it again appeared in England and Scotland, and cases continued to occur until 1873. Oftentimes it was confused with other forms of fever, and was nearly always associated with circumstances of privation or crowding.